

## G. Other Embodiments

The features and advantages of the invention are apparent to one of ordinary skill in the art. Based on this disclosure, including the summary, detailed description, background, examples, and claims, one of ordinary skill in the art will be able to make modifications and adaptations to various conditions and usages. These other embodiments are also within the scope of the invention.

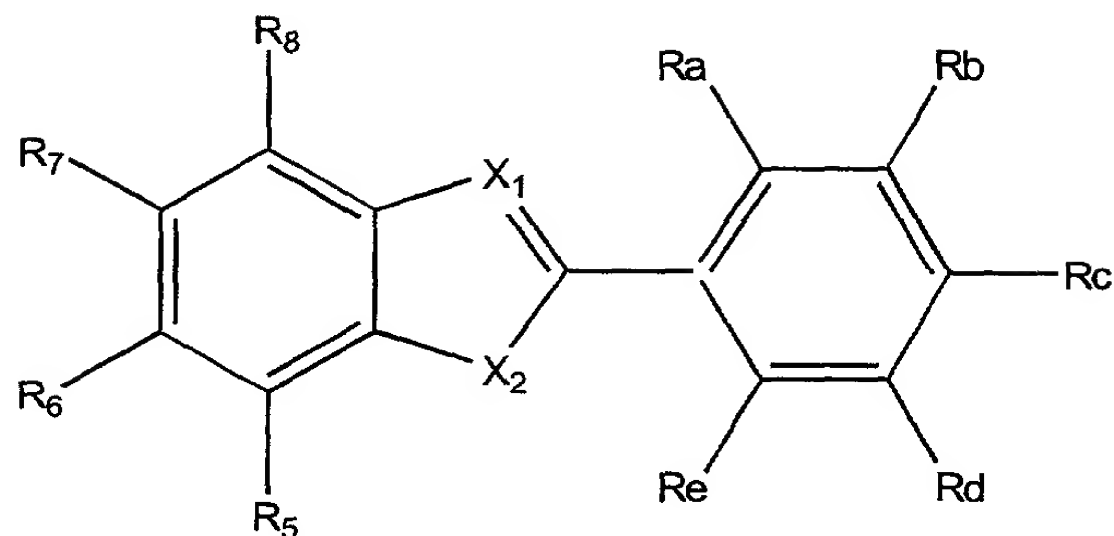
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What is claimed is:

# Claims

1. A compound of formula (I)(B):



wherein

X<sub>1</sub> is CR<sub>1</sub>, wherein R<sub>1</sub> is H, halo, cyano, amino, or nitro; and X<sub>2</sub> is NR<sub>3</sub>;

R<sub>3</sub> is H, -SO<sub>2</sub> (C<sub>1-6</sub> alkyl), -SO<sub>2</sub> phenyl, (C=O)(C<sub>1-6</sub> alkyl), or -W'Z';

W' is a covalent bond, (C=O), SO<sub>2</sub>, or C<sub>1-6</sub> alkyl;

Z' is C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, C<sub>3-8</sub> cycloalkyl, phenyl, or C<sub>2-6</sub>

heterocyclic radical, optionally including in the ring up to 3

additional heteroatoms or moieties independently selected from

O, N, NH, S, SO, and SO<sub>2</sub>; or Z' is NR<sub>13</sub>R<sub>14</sub> where each of R<sub>13</sub> and

R<sub>14</sub> is independently selected from C<sub>1-6</sub> alkyl, C<sub>2-6</sub> alkenyl, phenyl,

benzyl, C<sub>3-8</sub> cycloalkyl, and C<sub>2-5</sub> heterocyclic radical;

each of R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub> and R<sub>8</sub> is independently H, C<sub>1-6</sub> alkyl, C<sub>1-6</sub>

alkoxy, halo, nitro, or amino;

one of R<sub>a</sub>, R<sub>b</sub>, R<sub>c</sub>, R<sub>d</sub>, and R<sub>e</sub> is WZ and the others are

independently selected from H, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkoxy, halo, nitro,

and amino;

W is -O-, R<sub>9</sub>, O-R<sub>9</sub>, NR<sub>10</sub>, -(CO)(O)R<sub>9</sub>, -O (CO)R<sub>9</sub>,

-(CO)NR<sub>10</sub>, or -N(R<sub>10</sub>)-CO-R<sub>9</sub>, wherein R<sub>9</sub> is C<sub>1-6</sub> alkylene, C<sub>2-6</sub>

alkynylene, C<sub>2-6</sub> alkenylene, phenylene, or C<sub>2-5</sub> heterocyclic

bivalent radical, and R<sub>10</sub> is H, C<sub>1-6</sub> alkyl, C<sub>2-6</sub> alkynyl, C<sub>2-6</sub> alkenyl,

phenyl, or C<sub>2-5</sub> heterocyclic radical;

Z is C<sub>2-8</sub> heterocyclic radical with at least one basic nitrogen atom

in the ring, optionally including in the ring up to 3 additional

heteroatoms or moieties independently selected from O, C=O, N, NH, NG, S, SO, and SO<sub>2</sub>, wherein G is R<sub>15</sub>, COR<sub>15</sub>, COOR<sub>15</sub>, SO<sub>2</sub>R<sub>15</sub>, SO<sub>2</sub>N, CSR<sub>15</sub>; or Z is NR<sub>11</sub>R<sub>12</sub> where each of R<sub>11</sub> and R<sub>12</sub> is independently selected from H, C<sub>1-6</sub> alkyl, phenyl, benzyl, C<sub>3-8</sub> cycloalkyl, and C<sub>2-5</sub> heterocyclic radical; or NR<sub>11</sub>R<sub>12</sub> taken together is a C<sub>6-8</sub> cycloalkylimino radical; and R<sub>15</sub> is C<sub>1-6</sub> alkyl, C<sub>2-6</sub> alkynyl, C<sub>2-6</sub> alkenyl, C<sub>3-7</sub> cycloalkyl, and C<sub>4-7</sub> cycloalkenyl; each of the above hydrocarbyl or heterocyclic groups being optionally substituted with between 1 and 3 substituents selected from C<sub>1-3</sub> alkyl, C<sub>1-3</sub> alkoxy, halo, hydroxy, phenyl, and phenyl(C<sub>1-3</sub> alkyl); and wherein each of the above heterocyclic groups may be attached to the rest of the molecule by a carbon atom or a heteroatom; or a pharmaceutically acceptable salt, amide, ester, or hydrate thereof.

2. A compound of claim 1, wherein R<sub>3</sub> is H or C<sub>1-3</sub> alkyl.
3. A compound of claim 1, wherein R<sub>3</sub> is -(C=O)C<sub>1-6</sub> alkyl.
4. A compound of claim 1, wherein R<sub>3</sub> is -SO<sub>2</sub>(C<sub>1-3</sub> alkyl).
5. A compound of claim 4 wherein R<sub>3</sub> is methylsulfonyl.
6. A compound of claim 1, wherein W' is a covalent bond.
7. A compound of claim 1, wherein W' is SO<sub>2</sub> or (C=O).
8. A compound of claim 1, wherein R<sub>c</sub> is WZ.
9. A compound of claim 1, wherein R<sub>b</sub> or R<sub>d</sub> is WZ.
10. A compound of claim 1, wherein W is ethoxy, propoxy, or butoxy.

11. A compound of claim 1, wherein W is -O-.
12. A compound of claim 1, wherein one of  $R_b$ ,  $R_c$ , and  $R_e$  is WZ and the others are independently selected from H, methyl, ethyl, methoxy, ethoxy, amino, nitro, and halo; and  $R_a$  and  $R_d$  are each independently H or methyl.
13. A compound of claim 1, wherein at least two of the following apply:  $R_c$  is WZ; W is propoxy or ethoxy; and Z is N-piperidino, 2-(N-methyl)pyrrolidino, or N,N-dimethyl.
14. A compound of claim 1, wherein Z is pyrrolidino, N-methylpyrrolidino, pyridyl, thiazoyl, piperidino, or  $NR_{11}R_{12}$  where each of  $R_{11}$  and  $R_{12}$  is independently selected from H,  $C_{1-6}$  alkyl, phenyl, benzyl,  $C_{3-6}$  cycloalkyl, and  $C_{2-5}$  heterocyclic radical or taken together with the N form a  $C_{6-8}$  cycloalkylamino radical.
15. A compound of claim 1, wherein one of  $R_b$ ,  $R_c$ , and  $R_e$  is WZ and the others are independently selected from H, methyl, ethyl, methoxy, ethoxy, amino, and halo; and  $R_a$  and  $R_d$  are each independently H or methyl;  
W is -O- or  $C_{1-3}$  alkoxy;  
Z is pyrrolidino, N-methylpyrrolidino, pyridyl, thiazoyl, piperidino, piperazino, N-methylpiperazino, or  $NR_{11}R_{12}$  where each of  $R_{11}$  and  $R_{12}$  is independently selected from H,  $C_{1-2}$  alkyl, phenyl, benzyl,  $C_{3-8}$  cycloalkyl, and  $C_{2-5}$  heterocyclic radical; each of  $R_6$  and  $R_7$  are each independently H, methyl, methoxy, or ethoxy; each of  $R_5$  and  $R_8$  is H.
16. A compound of claim 15, wherein  $R_3$  is H or  $-SO_2$  ( $C_{1-6}$  alkyl).

17. A compound of claim 15, wherein  $R_3$  is  $SO_2$  (phenyl) and  $(C=O)(C_{1-6} \text{ alkyl})$ .

18. A compound of claim 15, selected from 2-[4-[2-[1-(methyl)-2-pyrrolidinyl]ethoxy]phenyl]-1H-indole, 2-[4-[2-[1-(methyl)-2-pyrrolidinyl]ethoxy]phenyl]-1-(methylsulfonyl)-1H-indole, and 2-[4-[3-Piperidinopropoxy]phenyl]-1H-indole; ) 2-(4-(3-(4-methylpiperazino)propoxy)-phenyl)indole; and 1-(methylsulfonyl)-2-(4-(3-(4-methylpiperazino)-propoxy)phenyl)indole; or a pharmaceutically acceptable salt, amide, ester, or hydrate thereof.

19. A compound of claim 15, selected from 2-[4-[3-Piperidinopropoxy]phenyl]-1-(methylsulfonyl)-1H-indole, and 2-[3-[3-Piperidinopropoxy]phenyl]-1-(methylsulfonyl)-1H-indole or a pharmaceutically acceptable salt, amide, ester, or hydrate thereof.

20. A pharmaceutical composition comprising a compound of formula (I)B and a pharmaceutically acceptable carrier.

21. A pharmaceutical composition of claim 20, wherein said compound has a formula wherein: one of  $R_b$ ,  $R_c$ , and  $R_e$  is WZ and the others are independently selected from H, methyl, ethyl, methoxy, ethoxy, amino, and halo;  
 $R_a$  and  $R_d$  are each independently H or methyl;  
W is -O- or  $C_{1-3}$  alkoxy;  
Z is pyrrolidino, N-methylpyrrolidino, pyridyl, thiazoyl, piperidino, or  $NR_{11}R_{12}$  where each of  $R_{11}$  and  $R_{12}$  is independently selected from H,  $C_{1-2}$  alkyl, phenyl, benzyl,  $C_{3-8}$  cycloalkyl, and  $C_{2-5}$  heterocyclic radical; and  
 $R_6$  and  $R_7$  are each independently H, methyl, methoxy, or ethoxy.

22. A pharmaceutical composition of claim 21, wherein said compound has a formula selected from 2-[4-[2-[1-(methyl)-2-pyrrolidinyl]ethoxy]phenyl)-1H-indole; 2-[4-[2-[1-(methyl)-2-pyrrolidinyl]ethoxy]phenyl)-1-(methylsulfonyl)-1H-indole; 2-[4-[3-Piperidinopropoxy]phenyl)-1H-indole; 2-[4-[3-Piperidinopropoxy]phenyl)-1-(methylsulfonyl)-1H-indole; 2-[3-[3-Piperidinopropoxy]phenyl)-1-(methylsulfonyl)-1H-indole; 2-(4-(3-(4-methylpiperazino)propoxy)-phenyl)indole; and 1-(methylsulfonyl)-2-(4-(3-(4-methylpiperazino)propoxy)phenyl)indole; or a pharmaceutically acceptable salt, amide, ester, or hydrate thereof.
23. A method for treating disorders mediated by the histamine H<sub>3</sub> receptor in a patient, said method comprising administering to the patient a pharmaceutically effective amount of compound of formula (I)B.
24. A method of claim 23, wherein said compound has a formula wherein: one of R<sub>b</sub>, R<sub>c</sub>, and R<sub>e</sub> is WZ and the others are independently selected from H, methyl, ethyl, methoxy, ethoxy, amino, and halo;  
R<sub>a</sub> and R<sub>d</sub> are each independently H or methyl;  
W is -O- or C<sub>1-3</sub> alkoxy;  
Z is pyrrolidino, N-methylpyrrolidino, pyridyl, thiazoyl, piperidino, N-methylpiperazino, or NR<sub>11</sub>R<sub>12</sub> where each of R<sub>11</sub> and R<sub>12</sub> is independently selected from H, C<sub>1-2</sub> alkyl, phenyl, benzyl, C<sub>3-8</sub> cycloalkyl, and C<sub>2-5</sub> heterocyclic radical; and  
R<sub>6</sub> and R<sub>7</sub> are each independently H, methyl, methoxy, or ethoxy.
25. A method for treating a patient with a central nervous system disorder, said method comprising administering to the patient a pharmaceutically-effective amount of a compound of formula (I)B.

26. A method of claim 25, wherein said central nervous system disorder is selected from sleep/wake disorders, arousal/vigilance disorders, dementia, Alzheimer's disease, epilepsy, narcolepsy, eating disorders, motion sickness, vertigo, attention deficit hyperactivity disorder, learning and memory disorders, mild cognitive impairment, and schizophrenia.
27. A method of claim 25, wherein said disorder is selected from sleep/wake disorders, arousal/vigilance disorders, attention deficit hyperactivity disorder, and learning and memory disorders.
28. A method of claim 25, wherein said compound has a formula wherein: one of  $R_b$ ,  $R_c$ , and  $R_e$  is WZ and the others are independently selected from H, methyl, ethyl, methoxy, ethoxy, amino, and halo;  
 $R_a$  and  $R_d$  are each independently H or methyl;  
W is -O- or  $C_{1-3}$  alkoxy;  
Z is pyrrolidino, N-methylpyrrolidino, pyridyl, thiazoyl, piperidino, N-methylpiperazino, or  $NR_{11}R_{12}$  where each of  $R_{11}$  and  $R_{12}$  is independently selected from H,  $C_{1-2}$  alkyl, phenyl, benzyl,  $C_{3-8}$  cycloalkyl, and  $C_{2-5}$  heterocyclic radical; and  
 $R_6$  and  $R_7$  are each independently H, methyl, methoxy, or ethoxy.
29. A method of claim 25, wherein said compound has a formula selected from 2-[4-[2-[1-(methyl)-2-pyrrolidinyl]ethoxy]-phenyl]-1H-indole; 2-[4-[2-[1-(methyl)-2-pyrrolidinyl]ethoxy]-phenyl]-1-(methylsulfonyl)-1H-indole; 2-[4-[3-Piperidino-propoxy]phenyl]-1H-indole; 2-[4-[3-Piperidinopropoxy]-phenyl]-1-(methylsulfonyl)-1H-indole; 2-[3-[3-Piperidinopropoxy]phenyl]-1-(methylsulfonyl)-1H-indole; 2-(4-(3-(4-methylpiperazino)propoxy)-phenyl)indole; and 1-(methylsulfonyl)-2-(4-(3-(4-methylpiperazino)-propoxy)phenyl)indole; or a pharmaceutically acceptable salt, amide, ester, or hydrate thereof.

30. A method for treating a patient with an upper airway allergic response, said method comprising administering to the patient a pharmaceutically-effective amount of a compound of formula (I)B.

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31. A method of claim 30, wherein said compound has a formula wherein: one of  $R_b$ ,  $R_c$ , and  $R_e$  is WZ and the others are independently selected from H, methyl, ethyl, methoxy, ethoxy, amino, and halo;  
 $R_a$  and  $R_d$  are each independently H or methyl;  
W is -O- or  $C_{1-3}$  alkoxy;  
Z is pyrrolidino, N-methylpyrrolidino, pyridyl, thiazoyl, piperidino, N-methylpiperazino or  $NR_{11}R_{12}$  where each of  $R_{11}$  and  $R_{12}$  is independently selected from H,  $C_{1-2}$  alkyl, phenyl, benzyl,  $C_{3-8}$  cycloalkyl, and  $C_{2-5}$  heterocyclic radical; and  
 $R_6$  and  $R_7$  are each independently H, methyl, methoxy, or ethoxy.

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32. A method of claim 30, wherein said compound has a formula selected from 2-[4-[2-[1-(methyl)-2-pyrrolidinyl]ethoxy]phenyl]-1H-indole; 2-[4-[2-[1-(methyl)-2-pyrrolidinyl]ethoxy]phenyl]-1-(methylsulfonyl)-1H-indole; 2-[4-[3-Piperidinopropoxy]phenyl]-1H-indole; 2-[4-[3-Piperidinopropoxy]phenyl]-1-(methylsulfonyl)-1H-indole; 2-[3-[3-Piperidinopropoxy]phenyl]-1-(methylsulfonyl)-1H-indole; 2-(4-(3-(4-methylpiperazino)propoxy)-phenyl)indole; and 1-(methylsulfonyl)-2-(4-(3-(4-methylpiperazino)-propoxy)phenyl)indole; or a pharmaceutically acceptable salt, amide, ester, or hydrate thereof.

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